الفرقة: الاولى المادة : تفاضل وتكامل كود المادة: ر ١٣٢ الدرجة الكلية: ٧٠ درجة	كلية العلوم – قسم الرياضيات برنامج: جيولوجيا البترول و التعدين	دور مايو ٢٠١٥ الزمن: ساعتين التاريخ : ١٦ / ٥/ ٢٠١٥

اجب عن الاسئلة الاتية

السؤال الاول : (١٢ درجة)

(ا) اوجد النهايات التالية :

(١)- $\lim_{x\to 0}\frac{x^2}{1-\cos x}$ (٢)- $\lim_{x\to 2}\frac{x^3-8}{x^2-4}$

(٣)- $\lim_{x\to 0^+} x\ln x$ (٤)- $\lim_{x\to 3}\frac{|x-3|}{x-3},\ x\neq 3$

السؤال الثانى : (٢٠ درجة)

اوجد المشتقة الاولى $\frac{dy}{dx}$ للدوال الآتية:

(١)- $y=x^{\sin x}$ (٢)- $xy=\tan y$

(٣)- $y=e^{\sqrt{x}}$ (٤)- $y=\sin^3(3x^2+5)$

(٥)- $y=\sin^{-1}(x^3)$

السؤال الثالث : (٨ درجات)

(ا)- اوجد مجال التعريف للدالة $f(x)=\frac{1}{\sqrt{16-x^2}}$

(ب)- بفرض ان $f(x)=x^2$ و $g(x)=2x+1$ اوجد دالة التحصيل $(g\circ f)(x)$ وهل دالة التحصيل $(g\circ f)(x)$ دالة زوجية ام فردية وبين كذلك ما اذا كانت دالة التحصيل دالة احادية ام لا

السؤال الرابع : (٣٠ درجة)

احسب التكاملات الاتية

(ا)- $\int xe^x dx$ (ب)- $\int\frac{\cos x}{\sqrt{1+\sin x}}dx$ (ج)- $\int\frac{1}{\sqrt{x}}\cos\sqrt{x}\,dx$

(د)- $\int(\tan x+\sec x)^2 dx$ (هـ)- $\int\frac{dx}{\sqrt{9-x^2}}$ (و)- $\int\frac{x+2}{x^2+x-6}dx$

بالتوفيق والنجاح

د. عبد المنعم لاشين

Mansoura University
Faculty of Science
Geology Department
Date: 19/5/2015

Second Term Exam (May 2015)
The First Level (Petroleum & Mining Geology)
Subject: ع (١١٢)
Course: قوانين المناجم والمحاجر (م ثقافى)
Time: 2 hours Full Mark: 70

أجب عن الأسئلة الآتية:

السؤال الاول: أكمل الإجابة في الأسئلة الأتية (زمن السؤال ٤٥ دقيقة - درجة السؤال ٣٠ درجة)

ا) تصنف المواد التعدينية الي ٥ مجموعات هي:

١ ٢ ٣ ٤ ٥

ب) أنواع الرخص التعدينية:

١ ٢ ٣ ٤

ج) يتم إلغاء رخصة الإستخراج في الحالات الأتية:

١ ٢ ٣ ٤

د) أهم شروط تجديد رخص التعدين هي:

١ ٢ ٣ ٤ ٥

و) يخضع صاحب الرخصة الي دفع ضرائب الي الخزينة العامة كما يلي:

١ ٢ ٣ ٤ ٥

ل) أهم إستخدامات ال GPS هي:

١ ٢ ٣ ٤

ه) أهم الطرق الجيوفيزيقية في الإستكشاف التعديني هي:

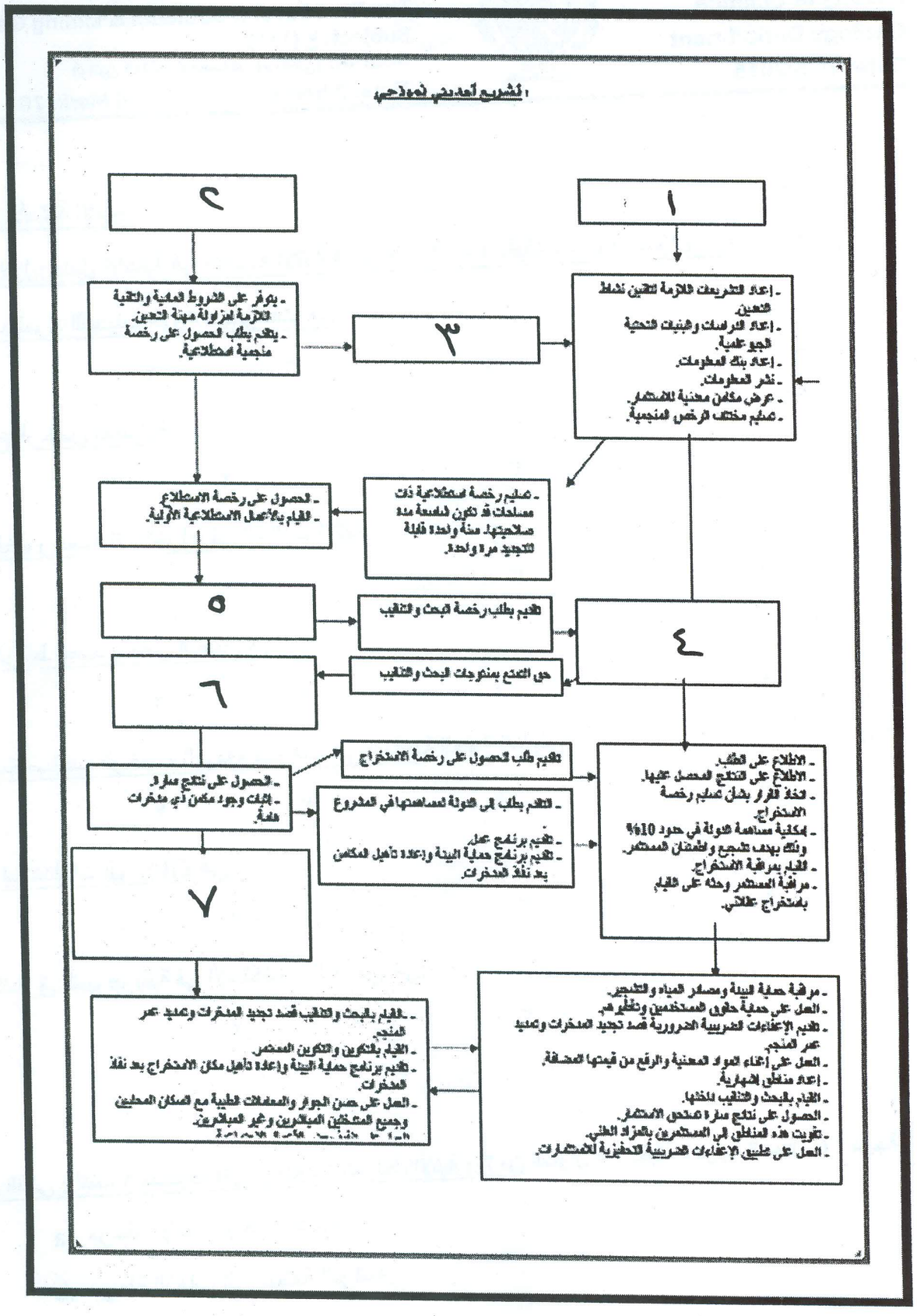
١ ٢ ٣

السؤال الثاني : أكتب ٦ متطلبات لكل مرحلة من المراحل الأتية : (زمن السؤال ٤٥ دقيقة - درجة السؤال ٢٤ درجة)

a. مرحلة الإعداد لرحلة تعدينية.
b. مرحلة الذهاب الي منطقة الدراسة.
c. مرحلة عمل المعسكر البحثي.
d. مرحلة العمل الحقلي.

السؤال الثالث: أكمل في المربعات الخالية رسم تخطيطي تشريع نموذج تعديني

(زمن السؤال ٣٠ دقيقة - درجة السؤال ١٦ درجة)



لجنة الإمتحان والتصحيح*: أ.د. صلاح نصر عياد د. أحمد مصطفى السيد عبدالجواد*

Mansoura University | **Second term Exam, 23 /5/2015**
Faculty of Science | **1st level Geology of Petrol and Mining**
Physics Department | **Time allowed: 2 hours**

Full mark: 60 marks

Subject: physics **Course: 112 ف Optics, Electricity and Magnetism**

Answer the following questions:

1- a) Drive Coulomb's law for the electric force between two charged particles. Explain the types of forces, unites and directions.

(7 marks)

b) The electron and proton of hydrogen atom are separated by a distance of 5.3×10^{-11}m. Find the magnitude of the electrical force between two particles.

(8 marks)

2- a) Explain the refraction phenomena of light rays when travels in different transparent media. Give the relation between the refractive index and the velocity of light in different media.

(9 marks)

b) If you have the refractive index values for Crown glass are 1.5145, 1.517 and 1.523 for red, yellow and blue light, respectively. Calculate the dispersive power for Crown glass.

(6marks)

3- **Choose the most correct answer**:

1- A beam of laser of wavelength 6328 A^{o} incident on a slab of transparent material with angle 40^{o} with normal, and refracted with angle 26^{o}, then the refractive index of the slab material is:

a- 550 b- 1.47 c- 6328 d- 1.33

2- If the refractive index of a glass material is 1.5, then the critical angle for a glass material is:

a- 90^{o} b- 60^{o} c- 45^{o} d- 41.8^{o}

3- The electric field at a point 20m far away from a charge q= 4μC is:

a- 90 NC^{-1} b- 3.6×10^{-4} NC^{-1}

c- 10^{-8} NC^{-1} d- 1800 NC^{-1}

4- When the image is formed with magnification equal 0.8, then the image is:

a- smaller than the object b- bigger than the object

c- equal to the object d- none of these

5- If the focal length of a spherical surface is 20 cm, the power of the surface is:

a- 20 D b- 5 D c- 2 D d- 0.05 D

6- The total internal reflection occurs when:

a- the reflected angle exceeds than incident angle.

b- the incident angle equals the reflected angle.

c- the incident angle exceeds the critical angle.

d- no answer.

7- The ratio between the speed of light in vacuum to the speed of light in a material is called:

a- the refractive index. b- the capacitance.

c- the resistance. d- the work done.

8- The materials permit electric charge to move from one region of the material to another such as Cupper and Iron are called:

a- Insulators. b- conductors. c- semiconductors. d-gases

9- A pair of conducting surfaces separated by an insulator gap constitutes:

a- a capacitor. b- a capacitance.

c- a resistance. d- none of these.

10- From the methods for determining the refractive index liquids is:

a- Abbe's refractometer b- air- cell method

c- as in a and b d- spectrometer

(30 marks)

With my best wishes

Prof. Dr. Mohammed A. El-Bakary

Mansoura University Faculty of Science Chemistry Department Subject: Chemistry Course(s): Chem.161 Principles of Organic Chemistry for 1st Level Petroleum geology and mining students	Second Term Time Allowed: 2 Hours Date: May. 2015 (26 – 5- 2015) Full Marks : 60

Answer All Questions

Q1: A - Complete the following sentences **(5 Marks)**

i- The IUPAC name of *iso*-butane is ---------- in which number of 1^0 H atom equal ----------

ii – The structural formula of *t*-butyl chloride is ----------while that of *iso*-propyl chloride is ---------

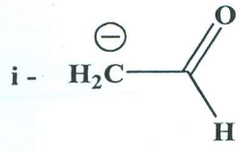
iii- Catalytic reduction of 2-butene give ----------while that of 2-methylpropene give ----------

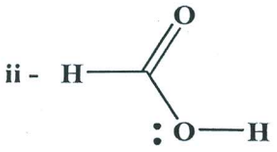
iv – The maximum number of structural formula for an alkane with molecular formula C_4H_{10} equal -------

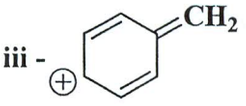
-while that of an alkyl with molecular formula ---------- equal 4

v - --------- are unsaturated hydrocarbons with general formula ---------- where all carbon atoms are bounded together triple with bonds

B - Draw all reasonable resonance structures for each species use **curved arrows**. compare the stabilities of these resonance structures indicating major and minor one. **(7 Marks)**

i - 

ii - 

iii - 

C - For an alkane with molecular formula C_5H_{12} **(8 Marks)**

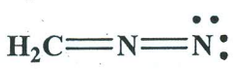
*write the general equation for combustion

*write all structural formula

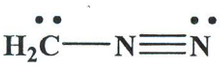
*arrange these structural formula with explanation in an increasing order with respect to their stability

Q2 : A - Consider Lewis formulas **A, B,** and **C**: **(6 Marks)**

A



B



C

(i) Calculate Formal Charge for carbon and nitrogen atoms in each structure **A, B,** and **C**

(ii) Explain why **A, B,** and **C** are resonance structures?

(iii) Which is a more stable structure, **A** or **B** & **B** or **C** ? Why?

B - Which compound in each pair of the following would you expect to have the higher boiling point? Explain your answers **(6 Marks)**

i - 

ii - 

C – For the following molecular formula. C_2H_3N where H are bonded to C atom **(4 Marks)**

*Draw Lewis structure

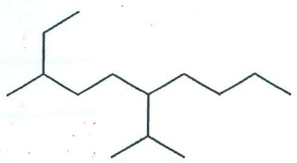
* Count number of σ and π – bonds

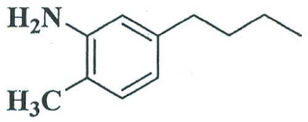
* count number of bonding and non bonding electrons

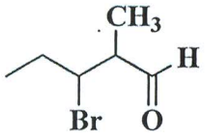
Please Turn to Next Page

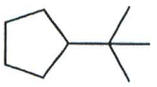
D - Calculate the percent yield of **2-bromobutane** results from radical monobromination of ***n*-butane** with Br_2 in the presence of hv **(4 Marks)**

Q3 : A – Give the IUPAC name for each compound **(8 Marks)**

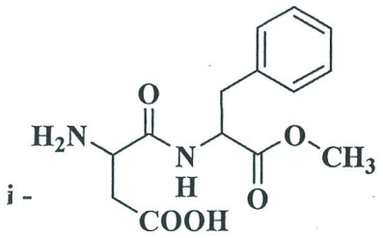
i - 

ii - 

iii - 

iv - 

B - Identify the functional groups in the following molecules **(5 Marks)**

i - 

C - Classify the designated carbon atoms as 1°, 2°, 3°, or 4° **(2 Marks)**

i - $CH_3 - CH_2 - CH(CH_3) - C(CH_3)_3$

D - Complete the following equations **(5 Marks)**

i - $CH_3-CH_2-Cl \xrightarrow[HCl]{Zn}$ ----------

ii - $2\ CH_3-\underset{H}{\overset{Br}{C}}-CH_2CH_3 \xrightarrow{Na}$ ----------

iii - $CH_3-\underset{H}{\overset{CH_3}{C}}-Cl \xrightarrow{Mg}$ ---------- $\xrightarrow{CH_3CH_2Cl}$ ----------

iv - $CH_3-\underset{H}{\overset{CH_3}{C}}-CH_3 + Cl_2 \xrightarrow{hu}$ ----------

Good Luck

Examiners **Dr. Ebrahim Abdel-Galil**

Mansoura University
Faculty of Science
Geology Department
Date: 06/06/2015

كلية العلوم
جامعة المنصورة

Second Term Exam. (May. 2015)
First Level (Petroleum and Mining)
Course No. G114
Course: Rock Forming Minerals
Time: 2 hours Full Mark: 60

Answer the Following Questions

Question One : Tick (√) or (X) and correct

1- Iron is more abundant than aluminum in the Earth's crust.
2- The single most abundant mineral in the Earth's crust is quartz.
3- Four negative charges are present on the single chain silicate unite.
4- Fe_2SiO_4 and Mg_2SiO_4 are the two end members of olivine .
5- An increase in Ca content of pyroxene makes it to crystallizes in the monoclinic system.
6- Muscovite belongs to the single chain silicate structure.
7- Feldspars can have various amounts of K , Na and Ca.
8- Amphiboles belong to the mafic minerals.
9- Cristobalite is a polymorph of quartz.
10-Quartz usually has an irregular fracture but lacks cleavage.
11- The simple twinning characterizes plagioclase .
12- Albite is exsolved from K-feldspars at low temperature giving anti perthitic texture.
13- Hematite is the most important aluminum ore.
14- Dolostone and limestone are examples of metamorphic rocks.
15-The mineral halite is composed of equal amounts of sodium and aluminum.

(15 marks)

Question Two: Complete.

1- .....and.....are the two most abundant minerals in he Earth'crust.

2- Two oxygen are shared in pyroxene structure whereas.....in amphibole structure.
3-The role of Al in silicate structure is to.....and.....
4-.....and..... ..... are not belonging to the ferromagnesian minerals.
5-..... and .....are angles between sets of cleavage in amphibole and pyroxene respectively.
6-.....and.....are two examples of sheet silicate minerals.
7- The dioctahedral and trioctahedral sheets are the..... and .....sheets respectively.
8-The basic structure unit of muscovite consists of two.....
9-The minerals.....and.....are the two end members of plagioclase
10- ..... belongs to the gibbsitic mica whereas .....belongs to the brusitic ones.
11- .....,.....and.....are the common mineral association in granite.
12- The silicate mineral groups are important because they.....
13- The ..... are important because from which a valuable elements can be extracted.
14- ..... ,..... and..... are three minerals formed by evaporation of sea water.
15- In chlorapatite structure , ...ion balances the deficiency of charges on apatite.

(15 marks)

Prof. O. Hegab and Prof. H. Ghazala

لجنة التصحيح:

Question Three: Choose the correct answer :

1- Which of the following statements is not correct for mineral
a- crystalline b- naturally ocuring c-usually organic
2- In the rock cycle, weathering creats
a- mountains b- sediments c- volcanoes
3- Which of the following minerals is most resistant to weathering
a-feldspars b-quartz c-olivine
4- The most abundant elements by mass in the Earth's crust are silicon and
a- potassium b-hydrogen c- oxygen
5- The non-silicate mineral groups in the Earth's crust only represent
a- 6% b- 8% c- 12%
6- Which of the following common minerals is NOT a silicate one
a- pigeonite b-anthophyllite c-anhydite
7- In silicates, silicon oxygen octahedrons may linked to form the following EXEPT
a- chain b-ring c- sphere
8- Which of the following is the building block of silicate minerals
a- Si b- $(SiO2)_{2-}$ c- $(SiO4)_{4-}$
9- Which of the following minerals is exsolved from augite
a-pigeonite b- diopside c-wollastonite
10- In the general formula of amphiboles , the largest ions are expressed by
a- X b-Y c- A
11- Cleavage is most conspicuous in
a-cristobalite b-muscovite c- garnet
12-Which of the following minerals belongs to the 3-D silicate structure
a- tridymite b- augite c- zoisite
13- Which of the following is not an ore mineral
a-hematite b- bauxite c- white sand
14- Which of the following pairs is not polymorphs
a-calcite-dolomite b- zoisite-clinozoisite c-coesite-cristobalite
15- Which of the following minerals has the heist solubility product
a-gypsum b- halite c-anhydrite

(15 marks)

Question Four:

The classification of silicate structure (minerals) is based on the different ways in which the SiO4 " building block" is polymorphed. Explains and give an example for each structure.

(15 marks)

Good Luck

Prof. Omar Hegab

Mansoura University
Faculty of Science
Geology Department
Date: 9/6/2015

Second Term Exam (May 2015)
The First Level (Petroleum & Mining Geology)
Subject: ج-١١٣
Course: بصريات المعادن
Time: 2 hours Full Mark: 60

OPTICAL MINERALOGY

ANSWER THREE QUESTIONS FROM THE FOLLOWINGS: -

Each Question = 20 Marks

1-Describe in details:-

A- Becke line.

B- Double refraction.

C- Ttwinkling

2-Compare between each pair of the followings:-

A- Optic axis and optic angle.

B- Mica plate and gypsum plate.

C- Birefringence and relief.

3-Explain in detail:-

A- Pleochroism.

B- Interference colours.

C- Refractive index.

4-Draw the followings:-

A- Nicol prism.

B- Critical angle & total reflection.

C- Extinction and extinction angle.

Good Luck & Best Wishes

لجنة التصحيح: أ.د. أمين مصطفي غيث - د. شعبان السيد مشعل*